MSS [APPENDIX
SECTION III PROJECTILE POINTS]
(21) T.1-2

SITE 1955-1959

Bo 28 Tobel 40

APPENDIX

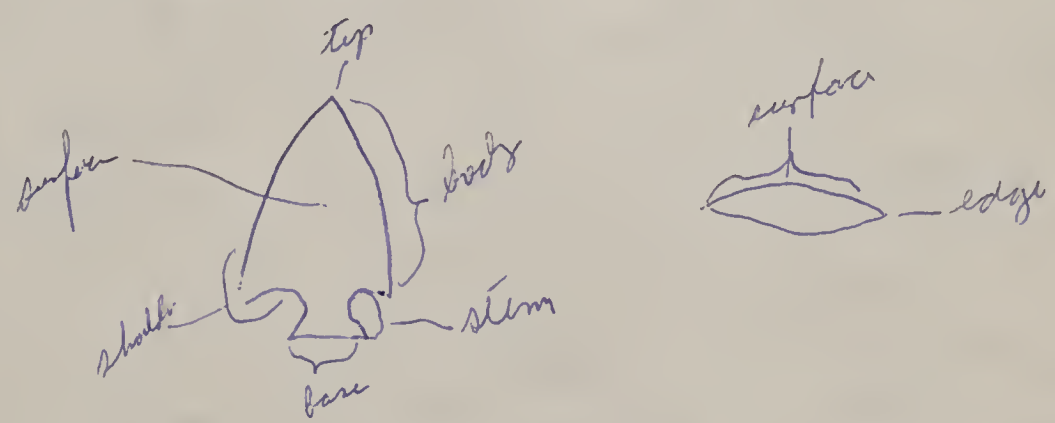
SECTION III

Section III

PROJECTILE POINTS

This section is about the 524 identifiable and 218 unidentifiable projectile points found in excavation in the Canyon Infiernillo region in southwest Tamaulipas. In actual fact the comparative aspect of the typology of these points used many more points which included 150 from surface collections in southwestern Tamaulipas, about 1,200 from southwestern Tamaulipas, about 500 from Northern Tamaulipas, and a much larger number that Alex Krieger had studied from Texas. Some of the points have been previously described but since there is no easy way to refer to them and the definition of these types is subject to change, it seems necessary to repeat their type descriptions. Certainly it seems that it is high time that New World archaeologists should take steps to remedy this situation that not only is wasteful of valuable time, paper, and money, but is no doubt boring to readers. Perhaps archaeologists of the future will imitate the botanists and zoologists in their definition of species and with research foundation funds set up a committee on projectile point typology, a center for type specimens, and type descriptions, and means by which published illustrated type descriptions are easily available.

A projectile point is here defined as a point of stone, bone, wood, or metal that is attached to a shaft which may be projected, thrust, or hurled. In the present discussion all the projectile points are of stone, bifacially chipped to a point. In describing projectile points I shall endeavour to use a terminology that is more or less consistent with that of other New World archaeologists.[1] Projectile points are considered to have tips, bodies, and bases, a sharp edge, flat surfaces, and may or may not have stems, notches, and shoulders. (See diagram).



Tips may be abrupt or tapering, bodies may be lanceolate, narrow isosceles, triangular, equilateral, and wide isosceles triangular. Lateral edges may be convex, concave, straight, parallel, serrated, and notched. Shoulders may be oblique, right angle, or tanged. Stems may be straight, contracting, and expanding, while bases may be indented, concave, straight, convex, or pointed. Points may have side-notches, later side-notches, corner notches, or basal notches. In making points, a variety of chipping techniques may be used such as percussion, resalved and pressure or retouching, flaking. These characteristics of points, plus size and dimensions, are here called projectile point features.

In the analysis of the points these point features were important because a type was defined as class composed of similar inter-related features that had significance in time and space. In the actual analysis points from each level of Tm c 247 were lumped into trial types and compared. Then those trial types having significant temporal (stratigraphic) distribution were compared with those from Tm c 248, Tm c 274, and Tm c 246. This meant further re-defining of

the trial types which, in turn, were compared with types from other parts of Tamaulipas and Texas to determine special significance. The further redefining of the trial types eventually tend to the types here described.

In terms of the actual sequence, three point types appear in the earlier period from 5,000 to 7,000 B.C. Infiernillo Diamond, Almagre Stemmed, and Abasolo Round-base. Seemingly only Abasolo Round-base carries on into the next period from 2,500 to 5,000 B.D. when Tortugas and Nogales Triangular appear. All three of these types appear along with Flacco Indented Base and Gary Stemmed in the period from 1,800 to 2,500 B.C. All of these die out except Abasolo Round-base, while Catan Round-base and Matamoros Triangular are dominant in the Period from 14,00 to 18,00 B.C. and all three along with Mesa Stemmed continue into the period from 400 to 1400 B.C. These appear along with Palmillas Corner-notched and Verde Serrated in the period from 300 to 900 A.D. In the San Lorenzo Phase from 900 to 1400 A.D. four new types appear: San Lorenzo Corner-notched, Jaumave Side-notched and Fresnos and Starr Triangular, while in the final period 1400 to 1800 A.D. San Antonio Side-notched is added.

In layers assignable to the last two phases many of the older types occurred. In a few cases the occurrence of types such as Abasolo and Catan Round-base, Matamoros Triangular, Verde Serrated, and perhaps Palmillas Corner-notched, may mean that these styles dominant earlier, continued. However The presence of the other points, I am inclined to believe, is due to prehistoric excavation and mixing of points from earlier layers with those of later strata. But until individual "pure" sites of each of the later phases are dug, the problem of whether there was continuity, re-introduction of types, or prehistoric mixing, cannot be definitely determined.

Digitized by the Internet Archive
in 2019 with funding from
Boston Public Library

https://archive.org/details/appendixsectioni00unse

It is obvious that the projectile point types mark off time periods in southwest Tamaulipas. Now the question arises, what do they tell us about cultural relationships?

Resident types

Infiernillo Diamonds: (Fig. No. 43-46)

Sample: Nine Sierra Madre, Tamaulipas, excavations.

Form: These are roundohedral in outline with the basal portion being about one-third of the total length. All edges are very slightly convex. The basal tip is relatively dull.

Dimensions: Maximum length ranges from 30 to 53 mm., averaging 37.3 mm.
Maximum width ranges from 17 to 28 mm., averaging 21 mm.
Maximum thickness ranges from 6 to 12 mm., averaging 7.7 mm.
Length of body ranges from 22 to 40., averaging 27.7 mm.

Chipping technique: These originally came from flakes that were bifacially percussion-flaked. Then with rude resolved flaking and small amounts of poor pressure-flaking, they were finished into final form.

Use: Since they are associated only with atlatl dart fragments, I suspect they tipped such projectiles. One specimen has gum on its basal one-third that just barely extends onto the body. Thus I suspect the base of the points went into foreshaft slots, string wrapped around the slot and basal portion, and that the string also went around the lowest part of the body.

Geographical and Temporal Range: Confined to southwest Tamaulipas in the period 5000 to 7000 B.C.

Relationships: These may be derived from Lerma Double-point. They are probably ancestral to Almagre Stemmed and, ultimately, Gary Stemmed.

References: None.

Almagre Stemmed: (Fig. , No. 22, 23, 25).

Sample: Ten in the Sierra Madre, Tamaulipas, in the Sierra de Tamaulipas, in northern Tamaulipas, and about 20 from Texas.

Form: These points have wide isosceles triangular bodies with convex edges. The stems, from one-sixth to one-third as long as the bodies, are only slightly narrower than the bodies,and there is not a sharp shoulder. ~~They~~ stems are in the form of a wide, short, inverted isosceles triangle or an inverted parabola. The actual base is a rounded dull point.

Dimensions: Maximum length ranges from 35 to 68+, averaging 54+ mm.

Maximum width ranges from 17 to 27 mm, averaging 24 mm.

Maximum thickness ranges from 6 to 10, averaging 8 mm.

Maximum length of stems ranges from 8 to 14 mm., averaging 11 mm.

Maximum width of stem ranges from 14 to 25 mm., averaging 18 mm.

Chipping technique: These are made from thick flakes that have been bifacial percussion on them. They were rounded into shape by fairly well-done resolved flaking with some pressure retouching along the edge and always at their tips.

Use: The[ir] association with only atlatl fragments indicates that they tipped atlatl foreshafts. Gum on one stem, plus the hafted similar Gypsum Cave points,[x] shows them to have been put in slots in foreshafts, cemented with gum, and then had string wrapped around the slots and the included incipient stems.

Geographical Range: Tamaulipas, Texas, Coahuila, and probably Nuevo Leon and San Luis Potosi.

Temporal Range: As far as southwestern Tamaulipas is concerned, they occur mainly in the Infiernillo Period,from 5000 to 7000 B.C. In eastern Tamaulipas they are more recent, 3000 to 1000 B.C., and in west Texas seem to last until 500 A.D.

Relationships: These points are probably ancestral to Gary Stemmed and in Tamaulipas derived from Infiernillo points. They are extremely similar to Gypsum Cave

x Kennington

points and further work in northern Mexico may eventually show the two types to be one and the same. As far as Tamaulipas is concerned, they seem to spread ~~eastward~~ from the west ~~into~~ the State.

References: Suhm and Krieger, 1954, p. ; MacNeish, 1958.

Abasolo Round-base: (Fig. No. 38-42)

Sample: One hundred and nine from the Sierra Madre, Tamaulipas, from the Sierra de Tamaulipas, from other parts of Tamaulipas, and about 50 from Texas.

? Form: The points, in outline, are shaped like a conventialized tear drop. Bodies are roughly triangular with convex edges that blend into a convex base about one-quarter as long as the body.

Dimensions: Maximum length ranges from 39 to 76 mm., averaging 48.7 mm.
Maximum width ranges from 20 to 42 mm., averaging 26.8 mm.
Maximum thickness ranges from 5 to 17 mm., averaging 8 mm.

Chipping technique: Points are originally made from a flake which, in turn, has been bifacially chipped by percussion into its basic outline. Some pressure retouching and, very rarely, resolved flaking has occurred along its edges. A few (8) have slightly bevelled tips made by resolved flaking. This feature seems to be more common on Abasolo points in northern Tamaulipas and Texas. About 20 points have basal thinning either on one or both surfaces. This basal thinning was made by striking once or twice the sharp edge of the base of the point with some sort of curved bone flaker so that the force of the blow travelled along the point's main axis.

Use: Some of these may be blanks for points but the basal flutes and gum on the basal surface of three ? points indicate others were inserted into a shaft. Their size suggests that they were fixed into lance or main shafts of atlatl darts.

Geographical Range: Points of similar form appear over much of North America. There ? is a slight tendency for them to be more frequently pre-ceramically.

Temporal Range: As far as Tamaulipas is concerned they are first produced about 7000 B.C. and lasted until historic times.

Relationships: Too general to determine.

References: Suhm & Krieger

Tortugas Triangular: (Fig. No. 33-37)

Sample: Twenty-eight from excavations in the Sierra Madre, from the Sierra de Tamaulipas, from other parts of Tamaulipas, and about 100 from Texas.

Form: In outline these are isosceles triangles with convex edges that gradually taper to a point and a concave to straight base.

Dimensions: Maximum length ranges from 42 to 73 mm., averaging 52 mm.
Maximum width ranges from 25 to 45 mm., averaging 32 mm.
Maximum thickness ranges from 5 to 9 mm., averaging 6 mm.

Chipping technique: These are made from flakes which have been bifacially chipped by percussion into some sort of blank. Then by resolved and pressure flaking they were chipped into their triangular form. Usually (22 of 28 examples) they have bevelled tips made by resolved flaking first on one edge and adjacent surface and then on the opposite edge and opposite surface. Bases are always thinned by from one to six percussion blows against the sharp base by some sort of curved bone flaker. In a few cases (8) there is pressure flaking on the basal edges after the fluting. Two points have their lateral edges ground near the base.

Use: These are lance (Fig. No. 1) or atlatl dart foreshaft tips (Fig. No.2-3). They have been inserted in slots, V-shaped in cross-section, so that the shaft's two parts fit into the basal flutes. Next, the base of the points and overlapping shaft fragments have been smeared with gum. Finally, string has been

wrapped tightly around the shafts just below the base of the points but above the end of the slot, thereby clamping the surfaces of the slots into the basal flutes of the points. Also, the string at the base of the points also prevented the points rocking inside the slots or further splitting the shaft or foreshaft.

Geographical Range: Tamaulipas, San Luis Potosi, and Nuevo Leon, Mexico, as well as the southwest half of Texas.

Temporal Range: 1000 to 7000 B.C. in southwest Tamaulipas. Elsewhere in Tamaulipas and south Texas they may have lasted into more recent times.

Relationships: In eastern and northern Tamaulipas there seem to be some evidence that these points are derived from Nogales Triangular, which in turn are derived from Abasolo Round-base. In opposition to this development is the hypothesis of Gladwin and Sayles who see the type (called Clear Fork dart points), as a degeneration from Folsom points in central Texas.

References:

Nogales Triangular (Fig. No. 29-32)

Sample: Thirty from excavation in the Sierra Madre of Tamaulipas, from the Sierra de Tamaulipas, from other parts of Tamaulipas, and about from Texas. Five from San luis Potosi.

Form: These are isosceles triangles in outline with convex tapering lateral edges and very slightly convex bases with a very definite sharp break between the lateral edges and base (thereby distinguishing them from Abasolo points).

Dimensions: Maximum length ranges from 35 to 67 mm., averaging 49.2 mm.

Maximum width ranges from 32 to 40 mm. averaging 27 mm.

Maximum thickness ranges from 8 to 17 mm., averaging 8 mm.

Chipping technique: Same as Abasolo Round-base but lacks basal fluting and rarely (2 examples) has bevelled points.

Use: Some of these may be blanks but four have gum on their bases. The gum,plus their size, suggests they are lance or atlatl dart foreshaft tips. It seems probable they were hafted like Tortugas Triangular.

Geographical Range: Same as Abasolo.

Temporal Range: In Tamaulipas these appear about 5000 B.C. and seem to continue up until historic times. In the Sierra de Tamaulipas and Falcon Dam of Texas they seem to begin earlier than Tortugas Triangular but this does not seem to be true in the Sierra Madre.

Relationahips: These are probably derived from Abasolo points. In other parts of Tamaulipas it seems probable that they are ancestral to Tortugas and Matamoros points.

References:

<u>Flacco Indented Base</u> (Fig. No. 26-27)

Sample: Four from the Sierra Madre and one from southeast Tamaulipas.

Form: They are isosceles to almost equation triangles in outline with convex tapering lateral edges and a deeply concave to V-shaped base.

Dimensions: Maximum length ranges from 30 to 34 mm., averaging 31.5 mm.

Maximum width ranges from 23 to 28 mm., averaging 25 mm.

Maximum thickness ranges from 7 to 10 mm., averaging 8.25 mm.

Depth of basal concavity ranges from 4 to 9 mm., averaging 6.5 mm.

Chipping technique: These are made from flakes that have been bifacially percussion-flaked. Lateral edge bears pressure retouching but both the base and tips have resolved pressure-flaking. All tips are slightly bevelled and on two of them the bevelling extends onto the body.

Use: Because there are only atlatl and lance main and foreshafts associated with these, it is thought they are dart or lance tips even though they are small enough to be arrow points. Gum in the basal concavity suggests they were hafted like Tortugas Triangular.

Geographical and Temporal Range: Confined to ~~the~~ southern Tamaulipas in the Almagre and Flacco Phases from 1000 to 3000 B.C.

Relationships: A type perhaps transitional between Tortugas Triangular and Matamoros Triangular.

References: MacNeish, 1958.

Gary Stemmed: (Fig. No. 18, 20, 21 and 24).

Sample: Twelve from southwest Tamaulipas, from the Sierra de Tamaulipas, from other parts of Tamaulipas, and about 200 from Texas.

Form: Bodies are wide isosceles triangles with straight to very slightly convex edges. Stems are separated from the bodies by sharp shoulders either at right angles to the main axis of the points or by slightly tanged shoulders with depths of concavity of from 1 to 3 mm. Stems are contracting with convex bases, although two bases are almost pointed. They are usually about 1/3 the length of the body although they range from 1/5 to almost 1/2 of the body length.

Dimensions: Maximum length ranges from 33 to 56 mm., averaging 40.9 mm.

Maximum width ranges from 19 to 34 mm., averaging 20.5 mm.

Maximum thickness ranges from 5 to 12 mm., averaging 7 mm.

Maximum stem length ranges from 8 to 20 mm., averaging 15.4 mm.

Maximum stem width ranges from 10 to 21 mm., averaging 14.4 mm.

Chipping technique: These points are made from flakes that have been thinned by bifacial percussion flaking. They have been ground into shape by crude, often steep resolved flaking that is most marked in the shoulder areas. The edges have been sharpened by pressure retouching. Two have a small amount of grinding on their stems.

Use: In the Big Bend area of Texas this type of point always occurs in the foreshafts of atlatl darts and I suspect the Tamaulipas ones were used similarly. In hafting the stems are put in slots in the foreshafts, often with the base of the stem sticking into the bottom of the slot. Then they were smeared with gum and string wrapped around the upper end of the foreshaft from above the slot to the shoulder of the points.

Geographical Range: All over Texas, Tamaulipas, Nuevo Leon, Coahuila, Valley of Mexico ~~in Late Formative~~ times and perhaps an even wider area.

Temporal Range: In Tamaulipas and Texas they seem to have been ~~be~~ introduced about 3,000 B.C. In southwestern Tamaulipas they seem to go out of style about 1,500 B.C., but elsewhere they may continue up until 1,000 A.D.

Relationahips: They are undoubtedly derived from Almagre Stemmed. What they are ancestral to is difficult to determine. In the Sierra de Tamaulipas they seem to develop into Armadillo Stemmed.

References:

<u>Catan Round-base</u> (Fig. No. 10-16)

Sample: One hundred and fifteen from excavations in southwest Tamaulipas, from southwest Tamaulipas, from northern Tamaulipas, and about 100 from southern Texas.

Form: Shaped like convential tear-drop with slightly convex edges tapering to a point that blend into a well-rounded convex base.

Dimensions: Maximum length ranges from 19 to 39 mm., averaging 28 mm.
Maximum width ranges from 13 to 26 mm., averaging 18 mm.
Maximum thickness ranges from 3 to 15 mm., averaging 7 mm.

Chipping technique: Same as Abasolo Round-base with only slightly more resolved flaking and retouching.

Use: A few of these may be blanks but about half have gum on their bases so they must have been projectile points. In Flacco, Guerra, and Mesa de Guaje times they were associated with atlatl darts but in later levels occurred with both darts and arrows. Thus I believe these points were tips of both arrows and darts, depending on whether they are Early or Late.

Geographical Range: Tamaulipas, central Gulf Coast, and southwest Texas.

Temporal Range: 1,400 B.C. to 1,800 A.D.

Relationship: Derived from Abasolo Round-base and related to or the same as Desmuke points in central Texas.

References: MacNeish, 1958; Suhm and Krieger, 1954.

Matamoros Triangular: (Fig. No. 1-6)

Sample: Seventy-four from southwest Tamaulipas, from southeast Tamaulipas, from northern Tamaulipas, and about 25 from southern Texas.

Form: Isosceles or equilateral triangles with convex edges with bases that range from slightly convex to definitely concave.

Dimensions: Maximum length ranges from 18 to 34 mm., averaging 24 mm.

Maximum width ranges from 16 to 26 mm., averaging 20 mm.

Maximum thickness ranges from 6 to 12 mm., averaging 7 mm.

Chipping technique: Same as Tortugas and Nogales Triangular.

Use: Same as Catan Round-base.

Geographical and Temporal Range: Same as Catan Round-base.

Relationships: Derived from Tortugas and Nogales Triangular and possibly ancestral to Fresnos Triangular.

References: Suhm and Krieger, 1954; MacNeish, 1958.

Mesa Stemmed (Fig. No. 31-34)

Sample: Only six came from excavation in southwest Tamaulipas, while four came from surface collections.

Form: Bodies are wide isosceles triangles with straight to very slightly convex tapering lateral edges. Between the wide short straight stems with straight to slightly convex bases and the bodies is a short sharp shoulder at right angles to the point's main axis.

Dimensions: Maximum length ranges from 25 to 56 mm., averaging 41 mm.

Maximum width ranges from 19 to 34 mm., averaging 25 mm.

Maximum thickness ranges from 5 to 7 mm., averaging 6.5 mm.

Maximum length of stem ranges from 9 to 12 mm., averaging 10.5 mm.

Maximum width of stem ranges from 13 to 21 mm., averaging 16.3 mm.

Chipping technique: These are made from flakes that have been bifacially chipped by percussion blows. Then they have been shaped by resolved flaking that extends over about half their surfaces and,finally, the bases and tips have fine pressure flaking on them.

Use: Most of these points are associated with atlatl fragments, so I suspect the points were dart tips. Gum on the surface of stems but not on the edges suggests the stems were inserted in slots, stuck by gum and then string wrapped around the slotted end of the foreshafts as well as around the lateral edges of the stems that protruded out of the slots.

Temporal and Geographical Range: These start and are dominant in the Mesa de Guaje Phase at about 1,400 B.C. but continue up until historic times. They occur only in southwest Tamaulipas.

Relationships: These are related to Morhiss Stemmed in eastern Tamaulipas and Texas. Some of the small varieties look like Elam points of Texas.

References: None.

[illegible] (Fig. [illegible] No. I-[illegible])

[illegible]: Only one case was observed in southern [illegible]. Small [illegible] from [illegible] [illegible].

[illegible]: Young [illegible] [illegible] [illegible]

Palmillas Corner-notched: (Fig. No. 28-30, and Fig. No. 17 and 28)

Sample: Twenty-eight from southwest Tamaulipas excavation, from the Sierra de Tamaulipas, from northern Tamaulipas, and about 20 from Texas.

Form: Bodies are narrow isosceles triangles with convex edges. They have wide corner notches and a narrow flaring stem with a markedly convex base. A variant of the type has narrow deep corner notches and a somewhat wide base (Fig. No. 28).

Dimensions: Maximum length ranges from 35 to 91 mm., averaging 46.5 mm.
Maximum width ranges from 18 to 54 mm., averaging 24 mm.
Maximum thickness ranges from 4 to 10 mm., averaging 7 mm.
Maximum stem length ranges from 8 to 17 mm., averaging 11 mm.
Maximum stem width ranges from 12 to 26 mm., averaging 15.8 mm.
Maximum notch width ranges from 5 to 11 mm., averaging 7.3 mm.

Chipping technique: First flakes have been roughed out by bifacial chipping. Next a tear-drop-shaped blank has been made by resolved flaking that extends from the edges to almost across the surfaces. Then the corner notches have been removed by single percussion blows and, finally, all edges have been retouched.

Use: The size of these points, plus some dart shafts, suggest these tipped atlatl dart foreshafts. Four points have gum on them and its distribution is significant. Gum occurs thinly over the stems with marked concentrations at the junctions of the lateral and basal edges. This has been interpreted that the stems were set in slots then the string wound around the foreshafts below the point base and then crossed over foreshaft end and went through the points a notch, were wrapped across the other, through the other ~~a~~ notch and then crossed the foreshaft and again wrapped around below the base.

Geographical Range: All of Tamaulipas and most of Texas.

Temporal Range: In southwest Tamaulipas from 300 A.D. to 1650 A.D.

Relationships: These points seem to be related to Ellis points of Texas. As far as Tamaulipas is concerned, the type appears later in the southwest part of the State than it does to the north or east. Palmillas is probably ancestral to both Verde Serrated and San Lorenzo Corner-notched.

Verde Serrated: (Fig. No. 24-27)

Sample: Forty-nine from excavations in the Sierra Madre.

Form: The same as Palmillas Corner-notched except that lateral body edges bear 2 to 6 small notches.

Dimensions: Maximum length ranges from 22 to 45 mm., averaging 35.4 mm.
Maximum width ranges from 15 to 26 mm., averaging 20 mm.
Maximum thickness ranges from 4 to 7 mm., averaging 4 mm.
Maximum stem length ranges from 5 to 16 mm., averaging 8.9 mm.
Maximum stem width ranges from 8 to 19 mm., averaging 16 mm.
Maximum notch width ranges from 3 to 8 mm., averaging 5 mm.

Chipping Technique: Same as Palmillas Corner-notched except that pressure-made notches are added to the lateral edges during the last step of the points' manufacture.

Use: Same as Palmillas Corner-notched.

Geographical and Temporal Range: These points occur only in southwest Tamaulipas from 300 to 1400 A.D.

Relationships: Unknown.

References: None.

San Lorenzo Corner-notched (Fig. No. 21-23)

Sample: Fifteen from excavation in the Sierra Madre of Tamaulipas.

Form: Same as Palmillas Corner-notched.

Dimensions: Maximum length ranges from 23 to 35 mm., averaging 27.7 mm.

Maximum width ranges from 15 to 22 mm., averaging 17.4 mm.

Maximum thickness ranges from 3 to 6 mm., averaving 4 mm.

Maximum stem length ranges from 5 to 8 mm., averaging 6.5 mm.

Maximum stem width ranges from 7 to 14 mm., averaging 10 mm.

Maximum notch width ranges from 5 to 8 mm., averaging 6 mm.

Chipping technique: These are made from thin flakes, usually with evidence of percussion chipping. The points have been shaped into final form by pressure flaking and with two possible exceptions resolved flaking does not occur.

Use: These are associated mainly with arrow shafts so they are probably arrow points. Gum remains on two indicated they were probably hafted to arrow foreshafts or shafts like Palmillas Corner-notched.

Geographical Range: Southwest Tamaulipas.

Temporal Range: 900 to 1,650 A.D.

Relationships: They were derived from Palmillas Corner-notched and probably related to Diablo Corner-notched in the Sierra de Tamaulipas and are extremely similar to Scallom points in Texas.

References:

Jaumave Side-notched: (Fig. No. 1-3)

Sample: Eight occurred in southwest Tamaulipas.

Form: These have wide isosceles triangular bodies with convex edges and straight to slightly concave bases. On the lateral edges just above the base are wide shallow side-notches.

Dimensions: Maximum length ranges from 17 to 33 mm., averaging 27.7 mm.

Maximum width ranges from 17 to 26 mm., averaging 19.6 mm.

Maximum thickness ranges from 3 to 6 mm., averaging 3.7 mm.

Maximum notch width ranges from 3 to 5 mm., averaging 4 mm.

Maximum notch depth ranges from 1 to 3 mm., averaging 2 mm.

Chipping technique: All of these are made from thin flakes that have been made into points by pressure retouching along the edges of the flake.

Use: Arrow points. Hafted in the same manner as Palmillas Corner-notched though the small size of the notches indicate that fiber strands were the binding elements rather than string.

Geographical Range: Southwest Tamaulipas 900 to 1,650 A.D.

Relationships: Unknown

References: None.

<u>Fresnos Triangular</u> (Fig. No. 13-14)

Sample: Ten from southwest Tamaulipas, southeast Tamaulipas, northern Tamaulipas, and about 1,000 from Texas.

Form: These are narrow isosceles triangles with convex edges and straight to concave bases.

Dimensions: Maximum length ranges from 19 to 35 mm., averaging 27.5 mm.

Maximum width ranges from 15 to 24 mm., averaging 16.9 mm.

Maximum thickness ranges from 2 to 8 mm., averaging 4.2 mm.

Chipping technique: These are made from thin flakes that have been shaped by resolved flaking and then pressure retouched.

Use: Arrow points. There seem to have been three methods of hafting judging from the gum on their bases. Most common was the technique used for Tortugas Triangular where string or fiber merely tightened the slot in the shaft. Secondly, string was wound around the shaft and continued up onto the point. Thirdly ~~and~~ two example stems seem to have been held by windings first around the shaft, then crossing obliquely the point. the point, around the point, then crossing it again and back around the shaft below/

Relationships: Very general.

References:

Starr Concave: (Fig. No. 15-18)

Sample: Nine from southwest Tamaulipas, from the rest of Tamaulipas, 500 from southern Texas.

Form: Short isosceles triangles with slightly concave to straight sides and bases.

Dimensions: Maximum length ranges from 22 to 37 mm., averaging 27.3 mm.

Maximum width ranges from 15 to 22 mm., averaging 18.8 mm.

Maximum thickness ranges from 2 to 5 mm., averaging 3.8 mm.

Chipping technique: Same as Fresnos Triangular.

Use: Arrow points hafted in the same manner as Fresnos Triangular but the frequency of the types of hafting reversed.

Geographical and Temporal Range: South Texas and Tamaulipas from 900 to 1,800 A.D.

Relationships: Derived from Matamoros Triangular.

References: Suhm and Krieger, 1954; MacNeish, 1958.

San Antonio Side-notched (Fig. No. 9-12)

Sample: Eight from southwestern Tamaulipas.

Form: These are wide isosceles triangles, almost equilateral, with slightly convex edges and base. Just above the base are small rounded shallow side-notches.

Dimensions: Maximum length ranges from 20 to 36 mm., averaging 29.5 mm.

? Maximum width ranges from 14 to ~~27~~ 24 mm., averaging 18 mm.

Maximum thickness ranges from 3 to 7 mm., averaging 4.4 mm.

Maximum notch depth ranges from 1 to 3 mm., averaging 2.2 mm.

Maximum notch width ranges from 3 to 7 mm., averaging 4.6 mm.

Chipping technique: These are made from flakes that have been bifacially percussion-shaped. They have been worked into their basic form by neat resolved flaking and

then their edges and notches formed by pressure retouching.

Use: Arrow points hafted like Palmillas Corner-notched.

Geographical and Temporal Range: Southwest Tamaulipas 1,400 to 1,650 A.D.

Relationships: Unknown.

References: None.

ABERRANT TYPES

Aberrant 1. (Fig. No. 9)

Form: This is a pentagon-shaped point with a short concave base, long tapering stem, and a equilateral triangular body shorter than the stem.

Dimensions: Maximum length: ~~range~~ 33 mm.

Maximum width: 21 mm.

Maximum thickness: 7.5 mm.

Stem length: 19 mm.

Chipping technique: It was made from a thick flake that was bifacially worked by percussion. Then the surfaces have been worked by resolved flaking and the edges retouched.

Use: Projectile point.

Geographical and Temporal Range: Southwest Tamaulipas 5,000 - 7,000 B.C.

Comments: This peculiar point has been interpreted in two ways. David Kelley considers it to have an Angostura-like point which has its body reworked so that it is short and sharp. MacNeish considers it to have been an Infiernillo Diamond point that had its broken tip reworked into a concave base and its pointed base then re-used as its tip.

Aberrant 2. Meserve Point (Fig. No. 9)

Form: This point has parallel sides, a deeply concave base and short equilateral triangular body. The tip is slightly bevelled.

Dimensions: Maximum length: 43 mm.

Maximum width at junction of body and stem: 26 mm.

Maximum thickness: 6 mm.

Depth of concavity: 5.5 mm.

Chipping technique: The original flake was bifacially chipped by percussion and then the edges worked by resolved flaking and retouching. Both the base and parts of the lateral edges are slightly ground.

Use: Atlatl point(?)

Geographical Range: In the Great Plains of the United States extending to southern Tamaulipas.

Temporal Range: Difficult to determine although in Nebraska they are 4,000 to 6,000 B.C. In southwest Tamaulipas the one point came from a San Lorenzo level although it may well have been originally dug up from a Flacco, Ocampo, or Infiernillo level.

Relationships: See Suhm and Krieger, 1954.

References: M. Davis, 195 ; Suhm and Krieger, 1954.

Aberrant 3 - Plainview Point (Fig. No. 19)

Form: This point is lanceolate-shaped with a concave base, almost parallel sides with the maximum width only slightly wider than the base occurring at the mid-point and the tip is relatively abrupt.

Dimensions: Maximum length: 59 mm.

Maximum width: 23.8 mm.

Basal width: 20.5 mm.

Maximum thickness: 7 mm.

Depth of concavity: 3 mm.

Chipping technique: The point was made from a thick flake that was bifacially chipped by percussion. One surface has ripple flaking due to resolved flaking and edges are retouched. Basal lateral edges are ground.

Geographical and Temporal Range: From Alaska to northern Mexico; from 4,000 to 7000 B.C.

Relationships: See Krieger, 194 .

References: Suhm and Krieger, 1954; Krieger,

[illegible]

[illegible]

[illegible]

Aberrant 4 - Shumla Points (Fig. No. 19, 20)
(Two examples)

Form: Wide isosceles triangular bodies, basal notches from lateral barbs and a narrow short stem with a rounded base.

Dimensions: Maximum length: 33 and 37 mm.

Maximum width: 34 and 23 mm.

Maximum thickness: 6 and 4.5 mm.

Stem length: 12 and estimated 8 mm.

Stem width: 12 and 7 mm.

Notch width: 10 and estimated 7 mm.

Chipping technique: Same as Infiernillo Diamond.

Geographical Range: Southwest Texas, Coahuila, southwest Tamaulipas, and perhaps Nuevo Leon.

Temporal Range: In southwest Tamaulipas; 900 to 1400 A.D. but earlier elsewhere.

Relationships: ?

References: Taylor, 1948; Suhm and Krieger, 1954.

Aberrant 5 - Haley Points (Fig. No. 3-4)

Form: Isosceles narrow triangles with a concave base with a central basal notch and convex lateral edges with ~~a~~ small notches just above the junction of the base.

Dimensions: Maximum length: 25 mm.

Maximum width: ranges from 16 to 20 mm., averaging 18 mm.

Maximum thickness: about 2.5 mm.

Notches: 1 mm. wide and 1 mm. deep.

Chipping technique: These were made from very thin flakes whose surfaces have been flaked by resolved flaking. Then the edges were retouched and the notches made by delicate pressure-flaking.

Use: Arrow points. Hafted like Palmillas Corner-notched.

Geographical Range: Oklahoma, Texas, and Tamaulipas.

Temporal Range: 900 to 1800 A.D.

Relationships: Related to similar types on the late prehistoric and historic levels from Canada, the United States, and Mexico.

References: Suhm and Krieger, 1954.

<u>Aberrant 6</u> (Fig. No. 6-7)

Form: These have narrow isosceles triangular bodies, a straight offset stem with a straight to convex base and a single corner-notch making a barb on one shoulder.

Dimensions: Estimated maximum length: 33 mm.

Maximum widths: 15 and 17 mm.

Maximum thickness: 5 mm.

Length of stem: 10 mm.

Width of stem: 11 mm. and 9 mm.

Chipping technique: Same as San Lorenzo Corner=notched.

? Use: Because in various ? the Atomi are shown as using arrow points with a single unilateral fork, as well as the fact that they ? are small, I consider them to be arrow points.

Geographical and Temporal Range: Southwest Tamaulipas from 1400 to 1800 A.D.

Relationships: Unknown.

References:

	Total Pt.	Crude Frag	Fine Frag	Total Coal Pt.	Infierrillo	Alisos Agua	Abrasolo	Tortugas	Vasquez	Flaco	Gavilan	Cactus	Sabinillas	Tanque	Palmillas	Verde	Sonora	Tecolote	Tecolotito	Mesa	San Ant	Carpenter	Tecolote	Pleasant	Alamo	Hornet	Lucky Bill	[illegible]
San Antonio	140	32	10	98	3	2	19	2	5		4	18	13	1	1	5	2	2	6	5	8						2	0
San Lorenzo	236	44	27	165	2	3	21	7	15	1	2	33	18	1	11	19	12	6	4	4				1	1	2	2	
Palmillas	142	25	11	106			18	3	5			25	22	1	15	25	1										1	
Mesa	23	9		14			3					6	2	3														
Guerra	101	25	5	71			19					32	19		1													
Flaco	55	24		31			17	9	8	3	3	6	1															
Ocampo	30	3		27			17	8	2																			
Infierrillo	15	3		12	4	4	3																				1	
	742	165	53	524	9	10	109	28	30	4	12	15	79	6	28	49	15	8	10	9	8							

Intermediate points
Hidalgo
Almeyra
Nogales
Matamoros
Veracruz
San Lorenzo
Tuxtepec
Tapachula

| | | |

	Total	Fine pray	Good pray	Infusoria	Desmids	Chlamydomonas	Chlorella	Tetraedron	Monoraphidium	Ankistrodesmus	Scenedesmus	Coelastrum	Malleomonas	Mallomonas	Synura	Dinobryon	Uroglena	Ceratium	Peridinium	Gymnodinium	Euglena	Phacus	Trachelomonas	Lepocinclis	Cryptomonas	Rhodomonas	Nitzschia	Fragilaria	Navicula	Pinnularia	Cymbella	Gomphonema	Diatoma	Tabellaria	Asterionella	Melosira	Cyclotella	Stephanodiscus	Rhizosolenia	Tabellaria	Cyclotella	Stephanodiscus	Rhizosolenia
247 16	7	21				6	1	3				13	11				4	2	2	4		2	6						1													2
248, 21 May		6	3	2		11	1					4	2	1		1					1	1																					
247 15	3	5				2		2				3	1	1			1				1	2	2																				
274 1	6	3				3	1	3				1	1	1	3		2	2		1	1	1																				1
274 2	3	8				1	2	4				2					3			1	1	1																				
248, 22		7	2	3		7	2	2	1	1	8				3		2																								1	1
247 7	11	12				6		2			12	6			3	5	1	2		1	2																					1
247, 13	7	14				4	2	4			12	3			2	9	7	2		1																					1	1
246, 1-2	2	3													3	1																										1
274, 3						2						1	2		1	4																										
274 [illegible]	1					3	1					1	1																													
274, 3		5				5	1	1				1			3	2																										
247 [illegible]	2	1				2	1					3	9			7	1																									
247, 11	6	15				6		4				19	5	1	8	1																										
247 [illegible]		9				2						5	1	3																												
247 [illegible]		1				1						1																														
247 8	4	7				5						8	5																													
247 7		6				6						6		1																												
247 6	1	8				6						9	5																													
247, 5		4				2						9	3																													
[illegible]	13																																									
[illegible]																																										
[illegible]																																										
[illegible]											3																															
[illegible]																																										
[illegible]		3				2	1	1																																		
[illegible]		3				1	2																																			
[illegible]			1	1		7		3		1																																
[illegible]		1				1	1																																			
[illegible]		1				2																																				
[illegible]						1																																				
[illegible] ,24						1																																				
[illegible] ,25		1																																								
		3					1	2																																		
Tm. 247, 4 (1)																																										
Tm. 247, 4 (2)																																										
Tm. 247, 4 (3)		1				3																																				
Tm. 247, 4 (4)																																										
Tm. 247, 4 (5)																																										

[APPENDIX
SECTION III PROJECTILE POINTS]
(21) P1-2U